



## DEPARTMENT OF ENVIRONMENTAL SERVICES

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### DUTIES, AND FUNCTIONS

The Department of Environmental Services is responsible for the City's wastewater, storm water and solid waste disposal services. The department operates and maintains sewer lines, treatment plants, wastewater pump stations, landfills, refuse pickup and disposal; is responsible for the pumping of cess-pools; and manages the city's storm water permit programs.

### MISSION

To protect public health and the environment by providing effective and efficient management of the wastewater, storm water and solid waste disposal systems for the City and County of Honolulu.

### HIGHLIGHTS

**Administrative Support:** Wastewater Sewer Service Charge revenue for fiscal year 2006 amounted to approximately \$140,834,000, while the wastewater program continued to meet all revenue bond and financial requirements.

#### Wastewater Revenue

##### 2005-06 Fiscal Year

Sewer Service Charges .....	\$140,834,000
WW System Facility Charges .....	\$ 8,822,149
Other Revenue .....	\$ 3,270,223
Total .....	<u>\$152,926,372</u>

The department continues to improve operations through change. Work practices utilizing the enterprise asset management system/computerized maintenance management system are being improved and implemented through enhanced training and use of core team programs. Front-line supervisor training has been improved and expanded in reach to all three operations divisions to enhance the ability of supervisors to oversee their various functions. Actions have been put in place to allow the department to provide the billing of wastewater customers that are not billed through the Board of Water Supply, providing more timely billings and better accountability.

**ENV 2006 IT Enhancement:** During fiscal year 2006, the department executed its five-year Strategic Information Technology Master Plan, which identified 62 information technology projects recommended for implementation. Fourteen projects are currently underway, with 10 more identified as top IT priorities. ArcServer GIS technology is being developed in-house to serve sewer spatial data over the web with robust query and information tools. This is one more step towards having the data available to crews in the field. Other enhancements include extending fiber optic network to the Honouliuli Wastewater Treatment Plant, providing internet access to all ENV sites, purchasing five wireless-enabled laptops for Collection System Maintenance field crews, and replacing outdated PCs and monitors for Wastewater Treatment and Disposal staff.

#### NACWA's Peak Performance Awards

This program recognizes NACWA member agency facilities for excellence in wastewater treatment as measured by their compliance with their National Pollutant Discharge Elimination System (NPDES) permits. The City received two types of awards within the Peak Performance Awards program:

1. Gold Awards honor treatment works that have achieved 100 percent compliance with their NPDES permit for an entire calendar year.
2. Silver Awards recognize facilities that have received no more than five NPDES permit violations per calendar year.

##### Gold Awards - 2005

Kailua Regional Wastewater Treatment Plant  
Waianae Wastewater Treatment Plant

##### Silver Awards - 2005

Honolulu Wastewater Treatment Plant  
Sand Island Wastewater Treatment Plant  
Wahiawa Wastewater Treatment Plant

**Collection System Maintenance:** During this fiscal year, the division cleaned and flushed 534.55 miles of sewer line, cleaned 362 laterals and inspected 22,205 manholes. Television camera inspections were done on 111,714 feet of sewer line. Repairs were done to 538.75 feet of sewer, and 178.5 feet of laterals and extensions were installed. Thirty-five manholes were adjusted to grade and 40 treated for rodent/roach control.

**Environmental Quality:** Storm Water Quality (SWQ) Branch. The City's municipal National Pollutant Discharge Elimination System (NPDES) storm water permit was reissued effective March 31, 2006 for the period ending September 8, 2009. The Storm Water Quality (SWQ) Branch is tasked with administering the permit.

During fiscal year 2006, SWQ Branch continued forward with projects targeted at implementing structural best management practices (BMPs) within the City's drainage system and at storm drain outlets along the Waikiki Coast, Ala Wai Canal, Kuapa Pond, Kaelepulu Pond, Salt Lake, and Wahiawa Reservoir. The branch also completed several projects in the Salt Lake area during the fiscal year, including the maintenance dredging of waterways, the \$97,000 EPA-funded Phytoremediation project to reduce nutrients and other pollutants in Salt Lake, the joint City/Army-funded \$200,000 Aliamanu Crater-Salt Lake sediment study, and Army-funded Salt Lake BMP project.

**Inspections/Enforcement:** During fiscal year 2006, SWQ branch stepped up its inspections and enforcement program, which included responding to 407 complaints of illegal discharges, issuing 79 informational letters, 210 written warnings, 29 notice of violations, and collecting a total of \$25,300 in fines. The branch also increased its inspections of industrial facilities from previous years, which included 191 site visits. Industrial areas that were covered included Pearl City, Campbell Industrial Park, Airports, Mapunapuna, Iwilei, Kalihi, Ala Moana, Kakaako, Waipahu, and Halawa.

**Community Relations/Outreach:** The department's storm water NPDES public education program continued using partnerships between government, businesses, and the communities to leverage resources in reducing pollution of coastal waters. One such example is through the City's Adopt-A-Stream and Adopt-A-Block programs, in which the branch provided training and developed partnership efforts with schools. Aiea Intermediate, Waipahu, Campbell, Nanakuli, and Waianae High Schools were encouraged to get involved in an interdisciplinary unit, which developed a sense of stewardship toward the environment based on the ahupua'a concept. Throughout the fiscal year, the department, the aforementioned schools and community worked together to sponsor various cleanups, storm drain stenciling, and outreach efforts that brought together over 8,000 volunteers.

Volunteers stenciled over 525 storm drains, distributed over 2000 pieces of educational packets, and collected nearly 1350 bags (20 tons) of trash and debris. The department also hosted an Earth Month Teen Video Demonstration Project with Waiaphu and Nanakuli High School students with a goal to provide an avenue for students to develop knowledge about storm water and the link between personal behavior and water quality. Five 30-second public service announcements (PSAs) including the Mayor's reminder that preventing pollution is everyone's business, were presented in schools and on KHON2 television.

Other outreach activities related to the general public involved using PSAs, such as a movie slide shown at Consolidated Theaters in partnership with the State DOT-Highways, as well as radio and television spots featuring Mayor Mufi Hannemann urging citizens to "Help protect our waters ... for life". High-impact rack cards were developed to provide basic information on storm water and nine pollution prevention tips on simple things that homeowner's could do to prevent storm water pollution. Bus posters were placed in all city buses, and the branch implemented its newly designed website at [www.cleanwaterhonolulu.com](http://www.cleanwaterhonolulu.com).



**Kapakahi Stream Adopt-A-Block, Community Cleanup Event Flyer.**



**Midweek PSA Ad.**



**Ala Wai Watershed Earth Day 2006 Newsletter.**



**Inspection of a grease interceptor for conformity with pretreatment regulations.**

As part of the department's targeted outreach efforts in the Ala Wai Canal Watershed, it once again teamed with the Ala Wai Watershed Association and other agencies and groups for an Earth Day event. Several stream cleanup and storm drain stenciling events were coordinated by the department during the day at various locations throughout the watershed. Additionally, agencies set up booths, while the Department of Land and Natural Resources had a fish replenishment release of Mo'i near the Waikiki Aquarium and an armored catfish eradication effort in Manoa Stream. Another targeted effort included partnering with the local automotive shops, including Carquest, Checkers and NAPA stores on Oahu, to launch a campaign to keep used motor oil out of our streams and the ocean by encouraging the use of oil change boxes. Throughout the month of April, radio, print and television PSAs were used to generate interest, as well as point-of-purchase displays and motor oil tip cards placed within the partnering stores.

The Monitoring and Compliance Branch continues with the second phase of the Reduction of Odor and Sound Emissions (ROSE) program. ROSE is a program to address the odor and noise issues from our wastewater treatment plants, collection systems and pump stations. The branch is continuing a pilot test program for an emerging wastewater treatment technology called membrane bioreactor (MBR). Three new manufacturers joined the test program in 2006. The branch completed Phase One of the Chlordane and Dieldrin study, including smoke testing and collection system testing.

During fiscal year 2006, the Regulatory Control Branch, tasked with keeping harmful substances out of the city sewer system, issued 967 Industrial Wastewater Discharge Permits requiring grease interceptors and/or pretreatment devices (silver recovery units, oil water separators, etc.). The Regulatory Control Branch also performed 117 plan reviews on building permit projects proposing to install grease interceptors. During the fiscal year, Regulatory Control increased enforcement activities and issued 1,755 Verbal Warnings, 151 Letters of Warning, and 0 Notice of Violations. To help business owners and the public understand and comply with Honolulu pretreatment regulations, the Regulatory Control Branch continued with outreach efforts on Grease Interceptor Program Compliance. The primary focus of these presentations and displays was various community groups, neighborhood boards and tradeshow to educate local industries, as well as the public, about responsible use of the city sewer system.

The Water Quality Laboratory (WQL) performs diversified analytical procedures to monitor industrial wastewater going into the City's treatment system, the discharges from the City's eight wastewater treatment plants, and the receiving water environment. Laboratory analyses include measurements of physical/chemical properties, including metals and pesticides; microbiological examination, and biological assays. For fiscal year 2006, 141,762 analyses were conducted on 33,400 samples. In addition to providing sampling and analytical capabilities to support the City's environmental monitoring programs, WQL also assisted EPA in the development of methods to assess biological toxicity. Whole Effluent Toxicity (WET) tests assess the potential toxicity of treated wastewater by exposing dilutions of the wastewater to biological organisms and observing for negative effects. Hawaii possesses unique biological species, and this results in state-specific WET tests. Since November 2004, the Biology Laboratory of the WQL has been on contract with the Navy and the Marine Corps to conduct WET tests.

#### **WASTEWATER PUMP STATION STATISTICS - 2005-2006**

<b>PUMP STATION</b>	<b>MIL GALS PUMPED</b>	<b>AVG MGD</b>
AALA .....	26.870 .....	.074
ALA MOANA #1 .....	0 .....	0
ALA MOANA #2 .....	17,094.11 .....	46.833
ALALA .....	68.860 .....	.189
ALIAMANU #1 .....	105.365 .....	.289
ALIAMANU #2 .....	85.680 .....	.235
ALII BLUFFS .....	16.790 .....	.046
AWA STREET .....	1,100.848 .....	3.016
BEACH WALK .....	4,268.095 .....	11.693
COCONUT GROVE .....	60.980 .....	.167
ENCHANTED LAKE .....	115.290 .....	.316
EWA .....	513.212 .....	1.406
EWA BY GENTRY .....	118.098 .....	.324
FORT DERUSSY .....	809.243 .....	2.217



GRANDVIEW*	474.500	1.300
HALAWA	690.454	1.892
HALEKOU	15.920	.044
HART STREET	7,054.8	18.967
HEEIA	98.970	.271
HOMELANI	9.595	.026
KAHALA	1,626.740	4.457
KAHALUU	63.930	.175
KAHALUU HSG	46.900	.128
KAHANAHOU	150.700	.413
KAHAWAI STREAM	105.820	.290

#### WASTEWATER PUMP STATION STATISTICS - 2005-2006

<u>PUMP STATION</u>	<u>MIL GALSPUMPED</u>	<u>AVGMGD</u>
KAILUA HEIGHTS	749.500	2.053
KAILUA ROAD	604.850	1.657
KAMEHAMEHA HWY	2,109.232	5.779
KANEOHE BAY #2	69.000	.189
KANEOHE BAY #3	61.786	.169
KANEOHE BAY #4	16.080	.044
KANEOHE BAY #5	1.633	.004
KEMOO FARM*	693.500	1.900
KUKANONO	20.970	.053
KULIOUOU	148.471	.407
KUNIA	617.265	1.691
LAENANI	73.560	.202
LAIE	178.200	.488
LAKEVIEW	72.481	.199
LUALUALEI	305.650	.837
MAKAKILO*	438.000	1.200
MAUNAWILI ESTATES	38.640	.106
MAUNAWILI PARK	77.210	.212
MILILANI #19	31.046	.085
MIOMIO	26.370	.072
MOANA PARK	262.312	.719
NAKULA*	302.950	.830
NANAKULI	20.405	.056
NIU VALLEY	659.275	1.806
OHAI PLACE*	547.500	1.500
PACIFIC PALISADES	181.406	.497

#### WASTEWATER PUMP STATION STATISTICS - 2005-2006

<u>PUMP STATION</u>	<u>MIL GALSPUMPED</u>	<u>AVGMGD</u>
PAIKO DRIVE***	0	0
PEARL CITY	3,926.114	10.756
PUBLIC BATHS	64.969	.178
PUNAWAI	97.410	.267
UWALU*	839.500	2.300
WAIAWA	21.058	.058
WAIKALUA	74.600	.204
WAIKAPOKI	321.520	.881
WAIMALU	2,034.065	5.573
WAIPAHU	3,604.116	9.874
WAIPIO	177.969	.488
WEST BEACH #1	68.862	.189
WEST BEACH #2	69.981	.192
WEST LOCH EST	63.177	.173
WEST LOCH FRWY	126.970	.348
TOTALS	44,168.623	121.010****

\*No flow meters. Million Gals Pumped and Average MGD estimated.

\*\*Not on line LAKEVIEW

\*\*\*No flow meter. Flows to Niu Valley

\*\*\*\*Flow data does not match treatment totals due to wastewater flow through multiple pump stations in route to treatment plant.

## WASTEWATER TREATMENT PLANT PERFORMANCE - 2005-2006

TREATMENT PLANT	MIL GALSTREATED	AVGMGD
HONOLULIULI .....	9,848.702 .....	26.983
KAHUKU .....	71.682 .....	.196
KAILUA .....	5,771.799 .....	15.813
PAALAA KAI .....	30.663 .....	.084
SAND ISLAND .....	24,290.590 .....	66.550
WAHIAWA .....	692.012 .....	1.896
WAIANAE .....	1,292.230 .....	3.540
WAIMANALO .....	277.810 .....	.761
TOTALS .....	42,275.488 .....	115.823****

\*\*\*\*Flow data does not match treatment totals due to wastewater flow through multiple pump stations in route to treatment plant.

## WASTEWATER CONSTRUCTION

During fiscal year 2006, construction contracts for 23 wastewater projects were completed and closed out. Total of the final costs for these projects was \$110,221,940.43. Thirty-two (32) projects with a total contract value of \$306,327,913.20 were still under construction, or construction contracts were still open, as of June 30, 2006.

### Wastewater Construction Projects Completed

• Ala Moana Wastewater Pump Station Force Main Emergency Repair .....	\$ 2,888,298.69
• Aumoe Street Sewer Replacement (SMPR No. 19) .....	619,136.06
• Fort Weaver Road/Hapalua Street Sewer Rehabilitation .....	70,456.90
• Fuel System Modification at Honouliuli WWTP, Waianae WWTP and Laenani WWPS .....	151,950.37
• Halekoa Dr. & Palipaa Pl. (SMPR 48) .....	231,700.00
• Hamakua Drive Emergency Repair .....	1,100,000.00
• Hart Street WWPS Force Main Emergency Repair .....	1,360,866.72
• Hart Street WWPS Force Main Replacement .....	20,255,500.00
• Honouliuli WWTP Centralized Odor Control System .....	218,450.93
• Honouliuli WWTP Expansion Phase I, Part A .....	19,285,608.97
• Kahaluu Housing WWPS and Force Main .....	2,687,975.94
• Kainehe Street, Hamakua Drive, and Keolu Drive Reconstructed Sewer .....	26,378,439.62
• Kalaheo Avenue Reconstructed Sewer (Phase 1) .....	19,182,092.43
• Kaneohe Bay Sewers, I.D. 275 .....	3,976,446.72
• Kaneohe Bay South No. 5 WWPS Underground Fuel Tank Repairs & Mod .....	18,884.00
• Kaneohe/Kamehameha Highway Reconstructed Sewer (KK-CS-11) .....	1,148,800.00
• Kiwila St/10th Ave Reconstructed Sewer (SMPR 11) .....	217,220.00
• Laie Wastewater Collection System Expansion Phase I .....	7,703,536.05
• Magazine St Sewerline Replacement (SMPR 3) .....	924,300.00
• Niu Valley Wastewater Pump Station Force Main Emergency Repair .....	1,236,070.54
• Pacific Palisades Access Road Emergency Repair .....	325,273.53
• Waianae WWTP Remove Concrete Platform Chlorine Contact Tank, Phase 1 .....	68,891.85
• Waianae WWTP Reroute Gravity Sewer Lines .....	172,041.11
Total: .....	<u>\$110,221,940.43</u>

### Wastewater Construction Project Contracts On-Going

• Ahuimanu Wastewater Pre-Treatment Facility Headworks Modification .....	\$ 658,362.00
• Ala Moana Wastewater Pump Station Modifications .....	18,470,700.57
• Beachwalk Wastewater Pump Station Emergency Construction Bypass .....	9,000,000.00
• Fort St. Mall Sewer Rehabilitation (SMPR 60) .....	953,686.00
• Fort Weaver Road Manhole and Pipe Rehabilitation .....	2,179,785.00
• Fort Weaver Road Reconstructed Sewer .....	3,327,117.17
• Hart Street WWPS Alternative .....	23,065,866.03
• Honouliuli WWTP Solids Handling Facility, Interim Modification .....	1,998,733.85
• Ka Hanahou Circle Sewer Rehabilitation .....	817,861.00
• Kahuanani Street Sewer Replacement (SMPR No. 85) .....	1,780,079.98
• Kailua WWTP - Replace Primary Effluent Line .....	340,144.00
• Kalaheo Avenue Reconstructed Sewer (Phase 1, Emergency Work) .....	30,536,257.34

• Kamehameha Highway Trunk Sewer Reconstruction, Mililani .....	938,298.21
• Kaneohe WWPTF Demolition Plan - Phase I .....	779,247.24
• Kapiolani Boulevard Emergency Sewer Repair .....	1,676,281.50
• Kukanono WWPS Force Main Partial Replacement .....	180,770.00
• Laukoa Place Sewer Sewer Rehabilitation (SMPR 77) .....	729,692.00
• Miscellaneous WWTP & WWPS Projects – Kamehameha Highway WWPS: Replace Concrete Cylinder Pipe .....	915,706.00
• Nimitz Highway Sewer Reconstruction at OCCC .....	2,090,943.00
• Niu Valley Wastewater Pump Station Force Main Reconstruction .....	9,000,000.00
• Pearl City Force Main Emergency Repair .....	126,815.67
• Public Baths WWPS Modification .....	1,951,047.00
• Sand Island Basin Misc Sewer Rehabilitation .....	3,573,195.00
• Sand Island Parkway Wastewater Pump Station Modifications .....	1,018,564.24
• Sand Island WWTP Gravity Thickener, Emergency Repair .....	350,000.00
• Sand Island WWTP Modification Unit I, Phase 2A .....	93,966,588.08
• Sand Island WWTP Refurbish Gravity Thickener Modifications .....	635,158.77
• Sand Island WWTP UV Disinfection Facility and Effluent Pump Station .....	76,976,716.55
• Wahiawa WWTP Effluent Reuse and Reservoir Outfall Adjustment .....	15,514,600.00
• Waiomao Stream Sewer Replacement Rehabilitation (SMPR No. 24) .....	328,091.00
• Waipahu Street/Plantation Village & Sewer Reconstruction .....	1,621,606.00
• Ward Avenue Sewer Tunnel Repair .....	826,000.00
Total: .....	<u>\$306,327,913.20</u>



***Sand Island Wastewater Treatment Plant.***

**Refuse Collection and Disposal:** The Refuse Division plans, directs and coordinates solid waste management programs for the City and County of Honolulu. It provides refuse collection services and an integrated management system for waste reduction and disposal of solid waste, including recycling, waste-to-energy recycling (H-POWER), and landfilling. It operates and maintains refuse transfer stations, refuse convenience centers, and sanitary landfills.

As of June 30, 2006, H-POWER received in excess of 9.9 million tons of municipal solid waste since commencing

operations in 1990. For fiscal year 2006 alone, H-POWER received approximately 600,920 tons.

Total refuse-related expenditures for fiscal year 2006 were \$116,228,560 compared to the previous fiscal year total of \$110,282,023.

Recycling: The City continued its initiatives in recycling refuse, green waste, biosolids and wastewater. On average, 10.3 dry tons of biosolids from the Honouliuli Wastewater Treatment Plant were processed into compost. The Honouliuli Water Reclamation Facility distributed an average of 7.2 million gallons per day of recycled water.

#### REFUSE OPERATING EXPENDITURES - 2005 - 2006 Fiscal Year

#### EXPENSES/REVENUES

##### EXPENSES

Administration .....	\$ 4,896,907
Administration .....	\$ 935,826
Investigation and Inspection .....	\$ 225,685
Recycling .....	\$ 3,288,688
Glass Recycling .....	\$ 446,728
Refuse Collection .....	\$15,397,161
Honolulu .....	\$8,423,505
Rural .....	\$ 6,973,656
Refuse Disposal .....	\$95,934,492
Maintenance and Waste Diversion .....	\$1,185,152
Landfill .....	\$ 6,710,460
Transfer .....	\$7,455,081
H-POWER .....	\$80,583,799
TOTAL EXPENSES .....	\$116,228,560

##### REVENUES

Refuse Small Business Collection .....	\$ 522,702
Refuse Disposal .....	\$14,081,921
H-POWER Disposal Fees .....	\$34,418,706
H-POWER Electricity Sales .....	\$34,754,477
Recycling Surcharge .....	\$ 5,767,032

#### OPERATIONAL DATA - JULY 1, 2005 TO JUNE 30, 2006

Collection ..... 363,223 tons

<u>Disposal:</u>	<u>Tons Delivered</u>
Municipal Solid Waste (MSW)	
H-POWER .....	600,920
Waimanalo Gulch Landfill .....	336,806

H-POWER	
Residue .....	79,127
Unacceptable MSW .....	5,512
Ash (wet weight) .....	88,380

<u>Transfer:</u>	<u>Tons Transferred</u>
Convenience Centers .....	31,977
Kapaa Transfer Station .....	99,513
Kawailoa Transfer Station .....	15,703
Keehi Transfer Station .....	135,797

<u>Recycling:</u>	<u>Tons Recycled</u>
Office Paper .....	154
Mixed Paper (newspaper, cardboard, color-ledger, white-ledger, computer) .....	10,479
Mixed Containers (glass, aluminum, plastic) .....	1,855
Green Waste .....	29,395
Tires .....	865
Scrap Metal .....	5,345

H-POWER	
Ferrous .....	17,805
Non-ferrous .....	2,068